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ABSTRACT

A survey, completed by 15 professors of English, indicated a fundamental lack of student critical thinking skills within their department, and a 90 percent discrepancy in teacher training with only 10 percent of teachers having received formal training. This paper describes a workshop designed to educate and motivate the English professors in a small community college to teach critical thinking and problem solving skills. Program strategies included motivating faculty involvement through collaborative empowerment, positive reinforcement, personal communication, and voluntary participation. The workshop included instruction on practice in proven critical thinking teaching methods, a handbook of teaching strategies, research articles and resources, and post-workshop discussion meetings. Subsequent to workshop implementation, a second survey showed that participating instructors observed improvement in student critical thinking skills, and 100 percent reported increases in their own knowledge, awareness, motivation, and use of critical thinking teaching methods. The project also served as the start of an "across-the-curriculum" drive to infuse critical thinking into all courses at the college. Appendixes provide pre- and post-workshop surveys, survey results, post-workshop faculty feedback, workshop agenda, and the handbook's table of contents. (Contains 23 references.) (Author/LL)

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ED 372 046

A WORKSHOP AND RESOURCE PROGRAM FOR TRAINING AND MOTIVATING COLLEGE ENGLISH PROFESSORS TO TEACH CRITICAL THINKING SKILLS

by

Kathleen Adkins

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A Practicum Report

Submitted to the Faculty of the Abraham S. Fischler Center for the Advancement of Education of Nova University in partial fulfillment of the requirements for the degree of Master of Science.

The abstract of this report may be placed in a National Database System for reference

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Abstract

Development and Implementation of a Workshop Designed to Motivate and Train College English Professors to Teach Critical Thinking Skills.
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Descriptors: Critical Thinking Instruction/College English Professors/ Staff Development Workshop/Critical Thinking Workshop/Involving Faculty in Critical Thinking.

This program addressed a lack of fundamental student critical thinking skills as reported unanimously by 15 English professors participating in a pre-implementation survey. The survey also showed a 90 percent discrepancy in teacher training, with only 10 percent of the English teachers having received formal training. Program strategies included motivating faculty involvement through collaborative empowerment, positive reinforcement, personal communication, and voluntary participation. Workshop methods included instruction and practice in proven critical thinking teaching methods, a handbook of teaching strategies, research articles, and resources, and post-workshop discussion meetings. After the implementation, surveys determined that participating instructors observed improvement in student critical thinking skills; 100 percent of participating instructors also reported increases in their own knowledge, awareness, motivation, and use of critical thinking teaching methods. The practicum succeeded in training 60 percent of the English faculty, an increase of 50 percent. The project also served as the start of an "across-the-curriculum" drive to infuse critical thinking into all site college courses. Appendices include pre and post implementation surveys, workshop outlines, faculty feedback, and handbook table of contents.

Authorship Statement/Document Release

Authorship Statement

I hereby testify that this paper and the work it reports are entirely my own. Where it has been necessary to draw from the work of others, published or unpublished, I have acknowledged such work in accordance with accepted scholarly and editorial practice. I give this testimony freely, out of respect for the scholarship of other workers in the field and the hope that my work, presented here, will earn similar respect.

Kathleen Adkins

student's signature

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Permission is hereby given to Nova University to distribute copies of this applied research project on request to interested parties. It is my understanding that Nova University will not charge for this dissemination other than to cover the costs of duplicating, handling, and mailing of the materials.

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May 16, 1994

date

Final Report

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CHAPTER I

PURPOSE

Background

The goal of the practicum was to educate and motivate college English professors to teach critical thinking and problem solving skills. The setting for the practicum was a small central Florida community college. At the time of the practicum, the site college had awarded over 16,000 degrees in the college's first 29 years of service. The site school served the higher educational needs of more than 6,600 credit and 12,000 non-credit adult students, and employed 110 full-time faculty members and 40 adjunct instructors. Nineteen educators were employed as full-time English professors.

Of the 19 full-time English instructors, 12 were female. Four instructors held Ph. D. degrees in English or Education, two held Ed.S. degrees in English, and two held B.A. degrees in English with over 21 graduate hours in work toward a Master's degree. All remaining professors held M.A. degrees in English or English Education. The average age of professor at the site was 44 years old.

A comprehensive two-year public institution, the site school offered equal opportunity and a liberal admission policy to a diverse student body pursuing a wide range of educational goals. The college's Associate in Arts courses were designed to be parallel and equal to programs offered in the state university system. The college also offered an Associate in Science

degree designed to prepare students for occupational fields through such programs as Nursing, Criminal Justice Technology, and Computer Systems Analysis. The college also offered college preparatory programs, and many non-degree continuing education programs. The average age of a student at the site was 26 years old.

The population of the site community was 26,000, with a median income of $30,200. Population statistics by age were as follows: 0-17 years - 97,742; 18-44 years - 150,004; 45-64 years - 82,393; and over 64 years - 75,243. The population breakdown by sex and race were as follows: Male - 11,221; Female - 13,504; White - 18,401; Black - 5,525; Hispanic - 620; and Other - 179. Of site community high school graduates, 71.1 percent continued their education.

The practicum author was employed at the school site as a full-time English professor, teaching five college English classes including College Preparatory Writing and Freshman Composition. The responsibilities of the practicum author included design and administration of tests and lesson plans, class instruction, grade assessment, and individual student assistance through tutoring sessions and student/teacher conferences. The author was also a non-voting member of the General Education Task Force (GETF) at the site college.

The GETF, comprised of a select group of faculty and administrative members of the college, met weekly to identify and solve various educational problems at the site college. In August 1993, the GETF determined that critical thinking skills should be taught across the college

curriculum. The practicum partially addressed this critical thinking mandate by educating and motivating English professors for the effective teaching of critical thinking skills.

A fundamental lack of student critical thinking skills had been clearly documented within the English department at the site school in a pre-implementation survey (Appendix A). With this practicum, the author addressed the need to provide site English professors with specific strategies for teaching critical thinking.

Due to wide-spread faculty interest in the practicum, the author also allowed faculty members from other disciplines to participate in the project. Because of the complex nature of the problem, the initial success of the practicum, and the enthusiastic support of site administration, the author planned to continue leading an ongoing staff development/training program designed to improve critical thinking skills across the curriculum.

Problem Statement

The practicum author's preliminary research indicated overwhelming evidence of the importance of teaching higher-order thinking skills in the English classroom. By helping students develop and strengthen cognitive processes such as analyzing, evaluating, questioning, synthesizing, and deductive reasoning, we enable students to become self-reliant learners and independent thinkers.

The rewards inherent in the ability to think critically far outweigh the traditional benefits of rote memorization and recall. This is especially true in the current age of consistent technological, social, and economic

change. No longer is it sufficient, or practical, to instruct students in a set formula of facts, ideas, or skills. To best serve our students' needs, we must teach them how to be academically curious, intellectually flexible, and capable of creative, independent problem solving. In order to reach these goals, many teachers must modify, even radically transform, their teaching methods.

Research emphasizes that 100 percent of college students should possess critical thinking skills. Results of a survey of English professors at the site school indicated that 100 percent of surveyed professors reported that students were lacking in fundamental critical thinking and problem solving skills as evidenced in classroom observations and experiences (Appendix A); there was a 100 percent discrepancy between existing student thinking skill levels and optimum levels of student ability. According to the pre-implementation survey, 90 percent of responding instructors needed information on specific methods, tools, and resources for the teaching of critical thinking skills. Additional written comments indicated an enthusiastic response to the proposed project, a need for specific strategies, and an interest in a workshop or seminar.

A mandate set by the General Education Task Force (GETF) at the site college requires that 100 percent of students be taught critical thinking skills. As shown in the pre-implementation survey, only 10 percent of site English instructors had received formal training (through critical thinking seminars); there existed a 90 percent discrepancy in teacher training.

The practicum author created and implemented two participatory

teacher workshops offering specific, direct strategies designed to help English professors at the site school infuse critical thinking skills into the English curriculum. A corresponding teacher handbook contained conveniently organized key points and ideas, copies of helpful articles on critical thinking, and a list of excellent, current resources made available at the site school, including books, articles, videos, and workshops.

By training and motivating site English professors to effectively teach critical thinking skills, the author believed that all site students would benefit by receiving critical thinking instruction in at least one required English course. The practicum addressed critical thinking skill discrepancies, allowed the college to meet the GETF mandate, helped teachers to achieve higher levels of instruction, and improved the quality of education at the site college.

Outcome Objectives

The practicum author motivated and educated English professors at the site college by designing and implementing two staff development workshops and corresponding handbook, "Ideas and Strategies for the Teaching of Critical Thinking Skills." All English instructors were invited to participate in the workshop, in which site faculty members, including the practicum author, offered specific information and organized activities designed to directly teach and encourage critical thinking instruction. The handbook was distributed to all site English instructors to serve as a condensed, practical guide and resource for all

full-time and adjunct English instructors (even those unable to attend the workshop). The workshop was also video-taped for future critique and reference. Participating teachers and supporting administrators shared ideas and concerns about teaching critical thinking skills during a post-workshop meeting led by the practicum author. The meeting encouraged faculty support, interaction, and debate, enhancing motivation and confidence in the area of critical thinking instruction. In the post-workshop meeting, participants established that, although the practicum workshop was highly motivating and informative, the challenge of transforming site teaching practices to include critical thinking skills demanded an ongoing, college-wide program of additional, similar workshops and seminars.

The practicum objectives included:

1. Following the twelve week implementation of the staff-development program, consisting of the teacher workshops and handbook, "Ideas and Strategies for the Teaching of Critical Thinking Skills," and post-workshop teacher discussion meetings, there would be at least a 75 percent increase in critical thinking instruction by participating instructors as reported in the post implementation teacher survey (Appendix B).
2. After the twelve week implementation period, at least 50 percent of the target instructors would report an increase in student use of critical thinking skills such as problem solving, analyzing, and questioning, as shown in a post implementation teacher survey (Appendix B).
3. During the twelve-week implementation of the proposed practicum, at least 80 percent of participating teachers would express increased

awareness, motivation, and confidence in the area of teaching critical thinking skills as carefully recorded during post-workshop teacher discussion meetings through direct questioning by the practicum author.

CHAPTER II

RESEARCH AND SOLUTION STRATEGY

Educators are being bombarded with research heralding the importance of teaching critical thinking skills. The sheer quantity of current information available is staggering; the practicum author discovered 1,693 entries on the subject in a single ERIC computer search.

However, although "critical thinking" has become the educational catch phrase of the Nineties, it is far from a new concept. In fact, the idea originated with Gestalt psychology, a movement begun in the 1920's. Gestalt theory states that meaningful, satisfying learning involves reaching the same insight as the original problem solver (Ellis, 1938). Comprehension achieved through this process was also found to be more lasting than learning derived from rote memorization. The Gestaltist conclusion is clear: it is not enough to memorize the answer to a problem; true comprehension exists only through clear understanding of how the answer was reached. With this genuine understanding comes the ability to solve other similar problems.

It may be the special relevance of critical thinking to our changing society that has brought the imperative of teaching these skills to the mainstream of modern education. No longer is it enough to master one trade or learn one skill. Sophisticated thinking skills such as evaluating, analyzing, and decision-making are required in the home and the community, as well as on the job (Dickinson, 1991). Complex problems

and ever-changing technology demand high order problem solving capabilities. Teachers must revolutionize their teaching methods—with more than words and good intentions—to fit the revolutionized age.

In order to support critical thinking skills, teachers must relinquish the traditional role of instructor (Hayes, Alvermann, 1986). Lecturers must become listeners and discussion leaders, answer-givers must become models, coaches, and reinforcers. Teaching critical thinking means reversing classroom dynamics from teacher-centered sites of passively-received instruction, to student-centered sites of active learning.

Educational researchers have compiled many specific strategies with which to teach critical thinking skills. One important technique is what Tobin calls "wait time" (Tobin, 1987). This occurs when a teacher purposely pauses for three to five seconds after asking a question, instead of automatically supplying the answer if no student gives an immediate answer. Wait time allows students the opportunity to reach their own conclusions, work through problems, and expect and practice independent thinking.

Questioning and grouping techniques are equally important "teaching for thinking" activities (McTighe, 1985). However, McTighe concluded that standard modes of teaching for thinking, including defining, evaluating, discussion and debate, are insufficient. McTighe found "teaching of thinking" to be superior in developing critical thinking skills. Teaching of thinking is the direct teaching of cognitive processes through introduction to, discussion of, practice with, and participation in such skills

as hypothesizing, summarizing, comparing, and sequencing. Graphic organizers such as story maps, flow charts, and Venn diagrams are often used to relate content-specific material to the employment of strategic thinking skills.

High school teacher Linda Iovino devised a graphic organizer she called a "lexivision" for use in student writing workshops (Iovino, 1991). She introduced the lexivision concept (*lexi* - word; *vision* - a mental image produced by imagination) as a visual tool to analyze Milton's Paradise Lost. By assigning small groups of students to combine quotations from the text with specific interpretive drawings, Iovino encouraged students to explore, explain, and interact with the literature, going far beyond mere analysis and recall.

Perhaps the best-known system for defining levels of thought process is Bloom's Taxonomy (Parnes, 1987). The levels of Bloom's Taxonomy are knowledge, comprehension, application, analysis, synthesis, and evaluation. Teachers of critical thinking skills such as questioning can effectively utilize the taxonomy in direct classroom instruction.

Critical thinking can, and should, be incorporated across the curriculum. The point needs to be made to instructors that critical thinking instruction is not something else that must be taught *in addition to* the existing material, but rather *integrated* into the pedagogy as a *method of instruction.* For example, English teachers will find literature ideal for teaching such critical thinking skills as analyzing, summarizing, and questioning (Barwick, 1988). Barwick outlined the three types of abstract

thinking which can be taught through literature: 1) connection between A and B (cause and effect, analogy, comparison), 2) relationship of A and B yields C (inductive and deductive reasoning, inference and conclusion), and 3) understanding A in order to apply knowledge elsewhere (generalization).

Creative problem solving is an integral part of critical thinking skills. Teachers Dee and Barkley devised a problem solving acronym, SCAMPER (Substitute, Combine, Adapt, Modify, Put to other uses, Eliminate/ Elaborate, Reverse/Rearrange); this is one of many helpful teaching aids discovered by the practicum author during the research (Dee and Barkley, 1989).

The introduction of critical thinking instruction may be the most important advancement in teaching since the blackboard. The challenges and possible rewards for students and teachers alike are exciting. Marlys Mayfield, author of Thinking for Yourself: Developing Critical Thinking Skills Through Reading and Writing, writes that critical thinking skills are more empowering than anything else that can be learned in college (Mayfield, 1993). By empowering students with the ability to learn, think, and act *independently*, we empower our society with the means to advance and succeed—one individual at a time.

After reviewing the research, the question remaining was not whether to implement critical thinking (for undoubtedly teachers must), but how to effectively incorporate the modeling and practice of high order thinking strategies and problem-solving experiences into the existing classroom situation.

The challenge we face sits in the guise of the tired, hard-working, professional educator *who agrees in theory*, but scowls at the notion of adding something, anything, to an already over-burdened curriculum. Teaching critical thinking—even learning how to teach critical thinking—sounds like a lot of work. It is the educator who must be convinced, educated, and motivated.

In 1989, an accreditation/evaluation subcommittee for three district high schools faced the challenge of integrating critical thinking skills across the curriculum (Duffey, 1990). A faculty survey determined an overwhelming interest in learning more about techniques to develop student critical thinking skills. The sub-committee developed an in-depth, two-day staff development workshop, conducted mainly by volunteer in-house teachers. The workshop program was well organized and specific in target, focusing on the rationale, definition, and instruction of critical thinking skills. Thirteen teachers and nine department chairs participated in the workshops conducted on-site at the district schools.

According to Duffey, the workshop program was successful for the following reasons: the program was teacher-driven as opposed to being mandated by administration; all participants in the workshops attended voluntarily, thus improving motivation and encouraging interaction with teachers of other disciplines; staff development activities were conducted by in-house staff, promoting a level of confidence among attending staff; long-range goals were expected to occur slowly, influencing teachers to change their classroom behavior gradually in an on-going process designed

to change student thinking skills; workshops were conducted at site schools, making scheduling convenient for teachers; "first-class" food service was provided in familiar and comfortable surroundings; and workshops were designed to recognize the expertise of participants through active role-playing and group activities.

A two-day staff development workshop, led by teacher Mary Jane Petrowski, given at Luther College in Decorah, Iowa, presented critical thinking, collaborative teaching, cooperative learning, and critical assessment materials to librarians and teachers (Petrowski, 1991). The workshop goals included the following: for participants to gain an understanding of critical thinking concepts; to examine problems experienced by students with respect to critical thinking; and to identify strategies to enhance student critical thinking.

Petrowski sent participants an introductory letter along with four articles on critical thinking to be read before the workshop. This provided participants with additional motivation advance knowledge of critical thinking concepts, and a heightened sense of involvement. Bibliographies of suggested readings on skills instruction and critical thinking were also provided in order to encourage on-going research.

A staff development module on higher order thinking was part of an extensive program on elements of effective instruction given to every teacher, specialist, and building-level administrator in the Delaware Department of Public Instruction (Dee, 1989). The module also met a task force mandate to enhance higher-order thinking for all students, in all

content areas, state-wide.

Through active involvement in the staff development module, participants learned how to: participate in brainstorming and other "idea finding" techniques used in problem solving and decision making; distinguish between overt and covert participation; utilize the steps in creative problem solving; identify teacher behaviors that promote solving /decision making and those that hinder it; and implement methods which promote student interaction and meta-cognition. Module participants were provided with a series of related charts, outlines, and handouts, and given opportunities to actively use higher order teaching strategies. The module also made use of demonstrations, modeling, and transparencies to illustrate effective critical thinking teaching theories and methods.

Solution Strategy:

This practicum's solution strategy was to design and implement two staff development workshops and a corresponding materials handbook, "Ideas and Strategies for the Teaching of Critical Thinking Skills," to inform and motivate instructors at the site school, while addressing their questions and concerns. The workshops included many of the successful methods of critical thinking instruction as evidenced by Duffey, Dee, Petrowski, and Iovino. Participants in the workshops were given the opportunity to observe demonstrations of critical thinking modeling as based on the work of Bloom, Parnes, and Barwick. The teachers were encouraged to explore their reactions to the critical thinking process *as learners and thinkers*. Finally, they investigated, collaborated, gathered,

recorded, and analyzed ideas in order to reach informed conclusions about the teaching of critical thinking, a highly effective learning method adapted from Swartz's "conceptual-infusion approach." The workshops were designed to demonstrate powerful teaching tools the practicum author found in the reviewed literature.

Through participation in the workshops, site instructors were able to discern, for themselves, that critical thinking is not another *subject* to be added or inserted into the existing lesson plan, but a different *method* of teaching which could bring knowledge to life, and toward *real purpose*. In this way, the practicum author hoped to ignite, through carefully designed, active involvement, the imaginations and motivations of these educators.

A corresponding handbook was designed for teacher use, serving as a resource and reinforcement tool. It was a compact user guide, conveniently organized, offering key points and strategies as well as copies of useful articles and a list of resources for teachers wanting to do further research. This easy-to-read collection of materials was also offered to teachers unable to attend the workshops, which were videotaped for future reference.

CHAPTER III

METHOD

The staff development workshops and corresponding handbook, "Ideas and Strategies for the Teaching of Critical Thinking," served as first steps in meeting the need for site English professors to learn specific strategies for the teaching of critical thinking, as demonstrated by the pre-implementation survey (Appendix A).

Following Duffey's successful workshop directives, which established the importance of voluntary in-house involvement, the practicum author began the planning process by requesting assistance from interested target faculty members. During Week One of the implementation period, the practicum author sent notices via site campus computer mail, and traditional faculty mailbox systems. These notices invited all interested English faculty members to join a committee, led by the practicum author, to address the need for infusion of critical thinking skills into the English curriculum. The purpose of forming this committee was to empower site faculty through involvement in the process of designing the critical thinking staff development program.

Collected responses indicated that five site English faculty members were available to form a critical thinking planning committee. The practicum author then established a mutually convenient meeting time, and reserved an on-site meeting room for the weekly, hour-long meetings.

It was during this initial coordination of time, people, and space, that

the practicum author began to foresee the challenges involved in developing and organizing a college staff-development program. Throughout the implementation period, the practicum author found that each increment of progress was belabored by the bureaucracy required to gain permission, acquire funds and materials, establish dates, and reserve space, resources, and equipment. These necessary steps, involving scheduling of administrative and faculty meetings, repeated correspondence, and paperwork, demanded more time than the practicum author had anticipated. It is for this reason that more of the 12-week implementation period preceded the workshops than the author had predicted in the practicum proposal.

The first committee meeting of target English faculty members was held during Week Two of the implementation period. The meeting lasted one hour. At this meeting, a preliminary introduction to the purpose of the workshop program was given to the newly formed committee by the practicum author, who shared practicum outcome objectives, research, and solution strategies. The practicum author then asked for responses and suggestions from all committee members.

The following items were established by the committee during the first meeting: voluntary participation indicating genuine interest was important; faculty and staff members from all disciplines should be invited; active participation was essential; and convenient scheduling, comfortable surroundings, and amenities such as food were necessary to promote participation and insure a positive experience. Several on-site locations

were agreed upon, as well as tentative dates deemed convenient for the greatest number of faculty members. A commitment was made by all members to return one week later with further suggestions and feedback.

Following the initial meeting, the author sought administrative approval of committee-proposed dates and locations, and investigated funding possibilities. Workshop location and dates were approved by site department directors; however, no funding was located for refreshments.

In Week Three, the practicum author reported site and date approvals and funding problems to the committee during the second meeting. Members brainstormed on alternative sources of funding, discussed ideas on pre-workshop publicity, and set exact workshop dates and sites. In order to meet the author's recommendation that a resource table be located at each workshops, plans were made to invite a member of the site library and resource center to attend the next meeting.

The committee also recommended that outside, experienced facilitators be chosen to present the workshops in order to make workshops more attractive to site participants. All members agreed to return to the next meeting with facilitator nominations. Between meetings, the practicum author finalized the scheduling of workshop dates and site arrangements, and successfully pursued other funding possibilities, returning to report and discuss results with the committee.

Twice during the implementation period preceding the workshops, the practicum author attended two major off-site English conferences, participating in multiple workshops in order to experience and observe

successful workshops in progress (SCETC, January 29 - February 1, 1994, and SFCLAE, February 25, 1994). The motivational and informative value of these effective, discipline-related workshops reinforced the author's belief that the practicum implementation would be successful. The need to obtain experienced workshop facilitators due to the organized, concentrated, demanding nature of that roles, was also reaffirmed. In addition, these conferences offered large-scale versions of the amenities recommended by Petrowski. The practicum author saw, first-hand, the importance of creating a positive, attractive atmosphere to complement a successful training session. The author reported these observations to the committee each time upon return to the site college.

During Week Four, the third one-hour meeting of the critical thinking planning committee was held. A site librarian attended the meeting and agreed to assist the author in compiling critical thinking books, articles, and videos for the workshop resource tables. The committee also voted on the choice of two facilitator candidates. The practicum author agreed to arrange for the facilitators. Confident that the task of planning had been thoroughly addressed, the committee concluded its meetings.

During Week Five of the implementation period, after securing the facilitators, the practicum author began pre-workshop publicity. The author created all publicity pieces using computer desktop publishing and laser printing in order to assure professional quality and appearance. The notices were distributed by computer mail, fliers in faculty access areas, and personal letters of invitation requesting each R.S.V.P. be sent by mail or

phone to the practicum author. The practicum author chose to utilize all forms of communication available at the site campus in order to reach the maximum number of faculty and staff members, reinforce the message, and offer convenient response options.

The author made appointments to meet with facilitators during Week Six of the implementation period to discuss workshop content, format, and materials. The meetings lasted for two hours. The author asked facilitators to plan on demonstrating, and involving participants in, specific critical thinking activities chosen by the practicum author to help site teachers gain skill and confidence in the teaching of critical thinking. Both facilitators were given the outcome objectives, research, and solution strategy materials from the practicum proposal. In addition, facilitators were encouraged to collaborate on workshop specifics such as logistics and needed equipment, and to share other ideas, personal preferences and requirements.

It was due to the recommendations of one facilitator that two workshops were scheduled rather than one, in order to give participants a chance to read, experiment, and reflect on strategies presented in the initial workshop before attending the second (Eison, 1994). Honorariums, which the practicum author had already cleared with site administrators, were also discussed and agreed upon.

During Week Six, the author also worked with the site library and resource center staff to order, preview and compile reference materials for the workshop resource tables. Books, videos, and articles on critical thinking were chosen to represent the best on-site resources. The author

also compiled current articles and an extensive bibliography for distribution at the workshops.

During Week Seven of the implementation, the practicum author created handbooks using good quality report folders containing three-ring binders and dual inside pockets. All printed materials were photocopied and three-hole-punched in order to be attached into the folders. Key pages and outlines were printed on colored paper for greater impact. The practicum author inserted a junior-size legal pad and a pen for workshop notes in the front pocket of each handbook cover. In the back pocket, two four-by-six note cards were provided for feedback, questions, and suggestions. These cards were designed to be handed in after each session.

The handbook provided a conveniently organized user guide of specific critical thinking tools and teaching strategies, including those demonstrated, along with pertinent articles referred to in the workshops, and a comprehensive list of resources.

Each handbook contained: a convenient list of critical thinking goals developed by the practicum author by summarizing practicum research; a comprehensive outline of questioning techniques and strategies for extending student thinking adapted from McTighe; several motivational handouts; a checklist on brainstorming techniques; and copies of articles on critical thinking theory and practice by Browne and Keeley (1988), Weiss (1992), Finster (1988), Johnson and Johnson (1988), and Kuhn (1988), some of which were provided by facilitators.

Twenty-five site full-time faculty and staff members attended the

first workshop, which was held during Week Eight of the implementation period. The participants included eight men and 17 women. Nine attending faculty members represented the targeted site English department. Twenty-one of those who participated were full-time faculty members; the remaining four represented the library, learning resource center, and continuing education departments of the site college.

Both staff development workshops were implemented using the conceptual-infusion approach (Swartz, 1986). Through active involvement, the participatory workshops highlighted such strategies as critical thinking modeling, wait time (Tobin, 1987), graphic cognitive organizers (McTighe, 1985), Bloom's Taxonomy (Parnes, 1987), and abstract thinking in content-specific lesson plan practice (Barwick, 1988).

The workshops were held in the spacious lobby area of the site's Fine Arts building. This area was chosen by the planning committee over a traditional classroom or auditorium because of its convenient location, attractive surroundings, and spaciousness. Ample room was required in order to set up six six-feet-long rectangular tables into a horse-shoe shape, allowing participants to work together in pairs and small groups. The facilitator was provided with a table, VCR playback unit, wireless microphone, and overhead projector with screen.

The resource table offering various materials available to site instructors, was put on display at the workshops. A site librarian was on hand to give assistance and check out materials. These resource materials, which included videos, books, articles, and information about available

training courses and seminars, were listed in the back of the handbook along with a lengthy resource bibliography.

The workshops explored a number of instructional issues in an interactive fashion, and demonstrated several practical pedagogical techniques that faculty could modify and apply in their own classes (Appendix F). Sessions lasted 150 minutes, including one brief break. Participants were encouraged to arrive early and stay afterward to enjoy refreshments and discuss ideas.

The workshop facilitators, along with the practicum author, were available to explain concepts, answer questions, lead discussions, and provide motivation, while modeling behaviors which the participants, as trained critical thinking instructors, would use. Participants also examined critical thinking problems experienced by students as outlined by Petrowski.

Attention was paid to the comfort and convenience of all participating faculty members. The amenities, including an on-site location, convenient scheduling, adequate breaks, and appetizing food, contributed to an enhanced sense of confidence, camaraderie, and motivation. Site administrators were invited to attend in order to reinforce a sense of importance and support to the program.

The workshops were videotaped for future reference, critique, and training purposes. Copies of the videotape were made available, along with additional copies of the handbook, to all faculty and staff members. In this manner, even those colleagues unable to participate were given the

opportunity to benefit from the program.

Site instructors were given encouragement to utilize the critical thinking teaching strategies offered by the workshops and handbook. The practicum author collected and recorded feedback from the notecards and post-workshop discussion meetings in which participants shared ideas, problems, and experiences about teaching critical thinking skills (Appendix E).

By collecting data in this manner, the practicum author was able to assess the effectiveness of the first workshop in Week Nine. The post-workshop data demonstrated the instructors' desire and need for additional sessions and seminars similar to the practicum workshops, leading the author to take appropriate actions at that time, with the help of the supportive site administration, to designate the practicum workshops as the beginning of an ongoing series of programs designed to enhance and develop critical thinking instruction skills.

The second workshop was held in Week Ten of the implementation period. Twenty-three full-time site faculty and staff members attended the second workshop. Those attending included seven men and 16 women. Ten participants were members of the targeted English department.

The second workshop was identical to the first session in site, set-up, amenities, equipment, and resources; the agendas differed only in the specific critical thinking ideas and techniques emphasized (Appendix F). This workshop was also followed by a faculty discussion meeting in which specific questions regarding critical thinking knowledge, awareness, and

motivation were given to the target English instructors. After the completion of both post-workshop meetings, the author compiled the answers to the five questions, and identified three main points of faculty consensus derived from discussions (Appendix E).

Over the 12-week implementation period, the practicum author discovered that communication was essential to effectively implementing this project. The author sent frequent memos to committee members, administrators, and participants, keeping all those involved informed as to the progress and status of the project. The author took care that all correspondence was proper, professional, and friendly.

During Week 11 of the implementation period, everyone involved, from the president of the site college to the video technician, received a public and personal "thank you" from the author. The author believed that this attention to acknowledgment and courtesy was an important factor in the positive reception, enthusiasm, and cooperation evident throughout the practicum implementation.

At the end of the twelve-week implementation period, targeted English instructors were asked to evaluate the effectiveness of the workshop and handbook on a post-implementation survey. This survey measured the improvement (or lack of improvement) in student critical thinking skills as observed by site English professors in the classroom, and any changes in teaching behavior to include or increase the teaching of critical thinking skills (Appendix B).

CHAPTER IV

RESULTS

The practicum author evaluated the practicum workshops and handbook, "Ideas and Strategies for the Teaching of Critical Thinking Skills" with teacher surveys given before and after implementation, and data collected at post-workshop discussion meetings.

The pre-implementation survey (Appendix A) established the need for critical thinking teaching tools, as determined by teacher observation. Two workshops were given to provide teachers with specific teaching strategies, techniques, and resources designed to address the student lack of critical thinking skills.

After the twelve-week implementation, another survey (Appendix B) was given to determine if participating English instructors had observed improvement in student critical thinking skills due to application of strategies and methods presented in the workshops and handbook, "Ideas and Strageties for the Teaching of Critical Thinking Skills." Additional faculty questions, ideas, and suggestions were collected and recorded during post-workshop meetings by the practicum author (Appendix E).

The practicum succeeded in meeting its three objectives, which were carefully evaluated by specific measurement tools:

At least a 75 percent increase in critical thinking instruction by participating English teachers was the practicum's first objective, as measured by the post implementation teacher survey (Appendix B). Survey

results showed an 88 percent increase (Appendix D).

The need for student improvement in critical thinking skills was clearly shown in pre-implementation survey results (Appendix C). The second objective was for 50 percent of targeted English instructors to report an increase in student critical thinking skills such as problem solving, analyzing, and questioning; a comparison of results from pre and post implementation surveys (Appendices A and B) showed a 55 percent increase of these skills.

The practicum's third objective was to increase knowledge of, awareness of, and motivation in critical thinking instruction skills in at least 80 percent of participating English professors as carefully recorded during post-workshop discussion meetings by the practicum author (Appendix E). Final results showed a 100 percent increase in these three areas. The practicum also succeeded in training 60 percent of the English faculty, an increase of 50 percent.

It was the practicum author's determination, however, that an effective, lasting infusion of critical thinking skills into the classroom could not be accomplished through the implementation of these two workshops alone. A consensus of site instructors in post-workshop meetings indicated that the enhancement of critical thinking instruction skills needed to be an ongoing, frequently reinforced process.

The author also determined that, although voluntary staff involvement, as recommended by Duffey, guaranteed motivated participants, there remained a significant number of instructors who

demonstrated no interest in learning new techniques and, therefore, did not participate. Post-workshop faculty discussions verified that these non-participating instructors were also perhaps the teachers least likely to use critical thinking or active learning activities; these instructors were the ones who, in fact, most needed training in these areas.

In order to accomplish across-the-curriculum critical thinking instruction, the author determined that training should be required for all full-time faculty members. While careful not to infringe upon the freedom of instruction which is so important to college faculty members, this mandate would equip all instructors with the critical thinking tools and methods necessary to best serve the needs of site college students.

This conclusion was the basis for a recommendation made to the site's General Education Task Force; the author utilized practicum research, objectives, and results in a recommendation to the site's General Education Task Force that the teaching of critical thinking skills be required "across-the-curriculum."

CHAPTER V

RECOMMENDATIONS

The practicum author believes that the implementation of this English-oriented practicum will lead to future critical thinking workshops at the site school as part of a college-wide drive to improve student critical thinking skills. By actively involving site professionals in the on-going process, the author set into motion a long-range program for the incorporation of critical thinking skills across the curriculum. The practicum author plans to remain actively involved in this program, which will include guest speakers, off-site seminars, instructor support groups, and the continuing expansion of critical thinking resources at the site college. This program, initiated by the practicum author, will also serve to address a General Education Task Force mandate requiring the teaching of critical thinking at the site school.

The videotape of the workshop, along with the handbook, will be used at the site school to train new and adjunct site instructors. The practicum report could also be distributed to other schools and colleges for similar workshops. Because the project was proven successful in motivating and instructing site English teachers, and because of the importance of critical thinking and the need for staff development in many colleges, the practicum report could be published as a resource for teaching professionals interested in developing similar programs.

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APPENDICES

CRITICAL THINKING SURVEY

Please circle the appropriate response:

SA=Strongly Agree A=Agree D=Disagree

From my classroom observations, I feel that my students **NEED IMPROVEMENT in** the following **critical thinking skills:**

1) Analyzing	**SA**	**A**	**D**
2) Problem Solving	**SA**	**A**	**D**
3) Synthesizing	**SA**	**A**	**D**
4) Decision Making	**SA**	**A**	**D**
5) Inductive / Deductive Reasoning	**SA**	**A**	**D**
6) Abstract Thinking	**SA**	**A**	**D**
7) Flexible Thinking	**SA**	**A**	**D**
8) Active Listening	**SA**	**A**	**D**
9) Relating Problems to Experience	**SA**	**A**	**D**
10) Independent Thinking	**SA**	**A**	**D**
11) Collaborating	**SA**	**A**	**D**
12) Organizing Ideas	**SA**	**A**	**D**

I would like more information concerning specific strategies, tools, and resources designed for the teaching of critical thinking skills.

SA A D

Comments: _____

_____

_____

_____

_____

CRITICAL THINKING SURVEY

Please circle the appropriate response:

SA=Strongly Agree A=Agree D=Disagree

After using the techniques and resources found in the workshop and corresponding handbook, "Ideas and Strategies for the Teaching of Critical Thinking Skills," I feel that my students **have shown IMPROVEMENT in** the following **critical thinking skills:**

1) Analyzing	**SA**	**A**	**D**
2) Problem Solving	**SA**	**A**	**D**
3) Synthesizing	**SA**	**A**	**D**
4) Decision Making	**SA**	**A**	**D**
5) Inductive / Deductive Reasoning	**SA**	**A**	**D**
6) Abstract Thinking	**SA**	**A**	**D**
7) Flexible Thinking	**SA**	**A**	**D**
8) Active Listening	**SA**	**A**	**D**
9) Relating Problems to Experience	**SA**	**A**	**D**
10) Independent Thinking	**SA**	**A**	**D**
11) Collaborating	**SA**	**A**	**D**
12) Organizing Ideas	**SA**	**A**	**D**

Before participation in this critical thinking workshop program, **I included critical thinking skills instruction in ___ % of my classes. After participation** in this program, **I am now including critical thinking skills instruction in ___ % of my classes.**

Comments: _____

_____

_____

PRE-IMPLEMENTATION SURVEY RESULTS

CRITICAL THINKING SURVEY

The fifteen site instructors who replied to the pre-implementation survey (of twenty-one surveys distributed) determined, from classroom observations, that their students **NEED IMPROVEMENT** in the following **critical thinking skills:**

Critical Thinking Skill	Strongly Agree	Agree	Disagree
1) Analyzing	12	3	0
2) Problem Solving	7	8	0
3) Synthesizing	3	12	0
4) Decision Making	2	13	0
5) Inductive / Deductive Reasoning	13	1	1
6) Abstract Thinking	13	2	0
7) Flexible Thinking	10	5	0
8) Active Listening	9	6	0
9) Relating Problems to Experience	7	8	0
10) Independent Thinking	3	12	0
11) Collaborating	5	10	0
12) Organizing Ideas	5	9	1

Surveyed instructors were asked if they would like more information concerning specific strategies, tools, and resources designed for the teaching of critical thinking skills. *(Ten instructors surveyed responded to this question)*

Desired more information:	Strongly Agree	Agree	Disagree
	2	7	1

Comments:

Seven instructors responded with comments, including:
"...would like to have a workshop or seminar instead of more information..." "This is long overdue! This is especially important for my college prep reading students who can't analyze or synthesize..." "Thanks for asking!" "We don't need more materials...we need ways to motivate the students." "I want to get involved. There is a lot of material on critical thinking available, but so much of it is confusing..." "Let me know how I can help with this project."

PRE-IMPLEMENTATION SURVEY RESULTS

CRITICAL THINKING SURVEY

All nine English instructors who participated in the workshop replied to the post-implementation survey and determined that their students **HAD SHOWN IMPROVEMENT in** the following **critical thinking skills:**

Critical Thinking Skill	Strongly Agree	Agree	Disagree
1) Analyzing	4	3	2
2) Problem Solving	3	3	3
3) Synthesizing	1	6	2
4) Decision Making	2	5	2
5) Inductive / Deductive Reasoning	0	5	4
6) Abstract Thinking	3	3	3
7) Flexible Thinking	5	3	2
8) Active Listening	6	1	2
9) Relating Problems to Experience	4	2	3
10) Independent Thinking	1	6	2
11) Collaborating	5	2	2
12) Organizing Ideas	4	3	2

Surveyed instructors were asked if they would like more information concerning specific strategies, tools, and resources designed for the teaching of critical thinking skills. *(Ten instructors surveyed responded to this question)*

Desired more training:	Strongly Agree	Agree	Disagree
	2	6	1

Comments:

Six instructors responded with comments, including:

"I have not read the lengthy materials, but I got a lot out of the sessions." "I would like to see more specific techniques presented instead of research theory." "It's difficult to change teaching methods after years of using other approaches." "I feel I was already using critical thinking techniques." "There has not been enough time to see a measurable change in student behavior." "My students seem to enjoy the active learning and group activities— and I do, too!"

Questions Asked of Participating English Instructors:

1. Did the workshops and materials improve your **KNOWLEDGE** of critical thinking skills and concepts? **YES: 100 percent**

2. Did the workshop increase your **AWARENESS** about critical thinking? **YES: 100 percent**

3. Did the workshop increase your **MOTIVATION** to include critical thinking in your instruction? **YES: 100 percent**

4. Did you **READ THE HANDBOOK** of materials? **YES: 44 percent NO: 55 percent**
   (Fifty-five percent of targeted instructors had not read the materials.)

5. Do you feel an ongoing program of workshops, speakers, resources, and reinforcement is necessary to effectively train faculty and staff in the successful use of critical thinking skills? **YES: 100 percent**

Faculty Consensus from Post-Workshop Faculty Discussions:

1. **Future workshops need to be directed more toward how-to and less toward motivation and general information.**

2. **Critical thinking should be applied across the curriculum, not just in English courses.**

3. **Infusing critical thinking into the curriculum can not be fully accomplished with a "shot in the arm" approach. Faculty members need ongoing training and reinforcement in order to effectively and consistently improve teaching methods for long term results.**

APPENDIX F: Workshop Agendas

"Ideas and Strategies for the Teaching of Critical Thinking"
In-Depth Staff Development Workshops

AGENDA

Introduction
Goals and Objectives • Brief Background and Summary of Articles

Relinquishing the Traditional Role of Teacher
Ice-Breaker Thinking Game

Practicing Participatory Debate:
"Teaching of Thinking" versus "Teaching for Thinking" • Analytic Thinking

BREAK

Forming of Cooperative Groups
"Think/Pair/Share"

"Critical Thinking and Metacognition"
Brainstorming and Roundtable Practice

Resource Overview / Discussion and Feedback

Session Two

Mini-lecture and Discussion:
Role-playing: Classroom Dynamics • Overt/Covert Participation

Mini-lecture and Discussion:
"Identifying Teacher Behaviors That Promote / Hinder Critical Thinking"

Modeling and Questioning Techniques
Socratic Discussion • Tobin's "Wait Time"

BREAK

Graphic Organizers
Venn diagrams, Flow charts, and Story Maps Activity: Creating a "Lexivision"

Networking and Interaction in the College and the Classroom
Resource Overview / Discussion and Feedback

WRAP-UP
"Where Do We Go From Here?"
Plans for Continuation of Critical Thinking Program "Across the Curriculum"

HANDBOOK
"Ideas and Strategies for the Teaching of Critical Thinking"

TABLE OF CONTENTS

1. *Critical Thinking Goals*
2. *"Do College Students Know How To Think Critically?" (Browne /Keeley)*
5. *Asking The Right Questions: A Guide to Critical Thinking (Browne / Keeley)*
10. *"But How Do We Get Them To Think?" (Weiss)*
12. *"Freshmen Can Be Taught to Think Creatively" (Finster)*
13. *"Critical Thinking Through Structured Controversy" (Johnson/Johnson)*
20. *Questioning For Quality Thinking (McTighe)*
21. *Strategies to Extend Student Thinking (McTighe)*
22. *Brainstorming Pointers*
23. *Rote Memorization is Counterfeit Learning*
24. *Guiding Principals (Eison)*
26. *Student Handout: How To Write a Summary (Holt)*
27. *Analytic Thinking Activity*
29. *Student Characteristics (Perry)*
31. *"Different Worlds in the Same Classroom" (Perry)*
38. *Issues of Gender in Teaching and Learning (Clinchy)*
47. *"What Reasoning Skills are Important in Graduate School?" (Kuhn)*
60. *A Resource Bibliography*